PTO 07-1148

CY=DE DATE=19840620 KIND=A1
PN=33 03 937

GELATINIZED SOLUTIONS FOR DENTAL CARE AT HOME
[Gelierte Lösungen zur häuslichen Zahnpflege]

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UNITED STATES PATENT AND TRADEMARK OFFICE
Washington, D.C. DECEMBER 2006

Translated by: FLS, Inc.

PUBLICATION COUNTRY	(10): DE
DOCUMENT NUMBER	(11): 33 03 937
DOCUMENT KIND	(12): A1 (13): Application
PUBLICATION DATE	(43): 19840620
PUBLICATION DATE	(45):
APPLICATION NUMBER	(21): P33 03 937.2
APPLICATION DATE	(22): 19830205
ADDITION TO	(61):
INTERNATIONAL CLASSIFICATION	(51): A61K 6/00
DOMESTIC CLASSIFICATION	(52):
PRIORITY COUNTRY	(33): AT
PRIORITY NUMBER	(31): A653-82
PRIORITY DATE	(32): 19820222
INVENTOR	(72): Ebner, N.
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TITLE	(54): GELATINIZED SOLUTIONS FOR DENTAL CARE AT HOME
FOREIGN TITLE	[54A]: Gelierte Lösungen zur häuslichen Zahnpflege

Claims /1*

1. A gelatinized solution of basic phosphate solution, in particular disodium hydrogen phosphate or gelatinized basic calcium salt solution, for filling first caps of soft synthetic resin, which are suitable for remineralization of damage to enamel in home dental care, is placed on the teeth and worn for a certain time, in particular 2 min, after which second caps, which are filled with a second gelatinized solution, which reacts with the gelatinized solution of the first cap, is placed on the teeth and again worn for a certain time, in particular 2 min.

2. A gelatinized solution of neutral calcium salt solution, in /2 particular calcium lactate, or a neutral phosphate solution, for filling second caps of soft synthetic resin, which are suitable for remineralization of damage to enamel in home dental care, is placed on the teeth and worn for a certain time, in particular 2 min, after first caps, which are filled with a first gelatinized solution, which reacts with the gelatinized solution of the second caps, has been placed on the teeth and worn for a certain time, in particular 2 min.

3. A solution as recited in Claim 1 or 2, characterized in that at least one of the caps contains a fluoro salt as an additive.

4. A solution as recited in Claim 1 or 2, characterized in that at least one of the caps contains a bleaching agent as an additive.

This invention relates to gelatinized solutions for home dental /3

* Numbers in the margin indicate pagination in the foreign text.

care, whereby after cleaning the teeth an effort is made to remineralize damage to enamel on the natural dentition.

Known methods of dental care are limited to the use of toothpastes and mouthwashes containing additives of calcium, fluorine, sodium phosphate, or the like when brushing or rinsing the teeth, so that it essentially involves only tooth cleaning and not the desired dental care, whose primary purpose should be the remineralization of damage to the enamel. After all, the concentration of the minerals required for remineralization, particularly calcium and phosphate, cannot be so great in the toothpastes and mouthwashes that their effect on the teeth during brushing or rinsing is sufficient to actually provide these minerals to damaged parts of the enamel.

As indicated by DE-OS 1 491 090, there is already a method for /4 oral care at home, in which a certain liquid is sprayed in the region of the teeth by a manually operated device. In this way, when the teeth are rinsed pharmaceutical preparations and antiseptics are supplies, but this, too, only amounts to cleaning with a possible therapeutic and disinfectant effect, but not the desired care for the enamel by remineralization.

For deodorizing and disinfecting the oral cavity, DE-PS 432 124 has also proposed attaching a container filled with disinfectant or deodorizer to the teeth. These containers, which are closed except for small openings, must be inserted by the dentist and are rather

uncomfortable. They are by no means suitable for home dental care nor are they capable of bringing the tooth surface into intimate contact with the agent, which is a prerequisite for effective remineralization of the enamel.

Thus, the object of the present invention is to provide a method of dental care that, while simple to use, provides genuine remineralization of damage to the enamel.

To achieve this object in accordance with this invention, a cap smeared with a gelatinized basic phosphate solution, in particular disodium hydrogen phosphate, or a gelatinized basic calcium salt solution is placed on the teeth and worn for a certain time, in particular 2 min, whereupon said cap is removed and, without rinsing the mouth, another cap, which is smeared with a gelatinized neutral calcium solution, in particular calcium acetate, or a gelatinized neutral phosphate solution is placed on the teeth and worn once /5 again for a certain time, in particular 2 min. With these caps, it is possible to allow the minerals required for adequate remineralization to act on the teeth for a sufficient time and with sufficient intensity, so that the desired deposition of these minerals in damaged areas of the enamel is assured. Due to the two-staged process, two mineral compounds can also be applied successively, said compounds being able to react together only in the region of the teeth, so that a certain reaction product can be selectively produced on the spot of the enamel problem, so to speak, the product then

being incorporated into the damaged location in the enamel. However, the reaction product cannot adhere to the surface of the healthy tooth enamel, which is completely smooth.

Thus, for example, if disodium hydrogen phosphate is applied to the teeth with the first cap and then calcium lactate with the second cap, these to compounds react to form calcium phosphate, which is then immediately deposited on the damaged enamel, as desired, which can be demonstrated with an electron microscope. Since this chemical reaction can occur only in the region of the dental enamel, the individual components must be kept separate beforehand, requiring two caps, and of course the compound applied first must not be washed away with intermediate rinsing. However, it is certainly possible to use a basic calcium solution in the first cap instead of a basic /6 phosphate and then a neutral phosphate in the second cap instead of the neutral calcium solution.

Since the tooth caps must remain on the teeth while the mineral compounds work, the caps must be of a suitable shape and be made of a compatible material, for which reason the caps are best made of a soft synthetic resin for carrying out this process. Such a synthetic resin cap can be produced easily and without difficulty and individually adapted to the teeth in question, while for treating all the teeth at once a cap made in the manner of a boxer's tooth protector is recommended. Moreover, due to their good fit, these caps allow the active substances to be pressed into the particularly at-

risk interdental spaces and in periodontal pockets, which in the past have been virtually inaccessible for dental care. So that the desired substances can be inserted into the caps in a simple manner and to assure that they have a good effect when used, it is expedient to give the solutions a slightly gelatin-like consistency. Such gelatinization is easily achieved and need only be dissolved in water and treated with a gelatinizing compound. It makes no difference whether each individual performs this gelatinization himself or whether the respective solutions are marketed in a gelatinized form. The gelling assures a well-running reaction between the solutions at the point of the damage and problem-free pressing of the substances onto the teeth with the caps. Moreover, the consistency of these gelatinized substances, which are under pressure under the soft synthetic resin cap, guarantees that they will be applied to particularly vulnerable parts of the tooth, such as fissures, /7
interdental spaces, neck of the tooth, etc.

The tooth care method of this invention results in genuine remineralization of the dental enamel, so that optimal dental care at little cost is possible for everyone, eliminating enamel damage and preventing damage of this kind. With additional additives, such as fluoro salts, to the active substances smeared into the caps, greater resistance can be provided not only to the remineralized parts of the enamel, but even to the entire tooth surface.

It is also particularly favorable if one of the caps is smeared with a solution that contains a medicinal additive for oral hygiene. Due to the osmotic effect of the solutions, which the caps bring into intensive contact with the teeth, an additional antibacterial effect is achieved, which helps eliminate bacterial plaque residue, which remains despite thorough cleaning; this effect can be strengthened as desired and used for oral hygiene by adding appropriate medications.

Moreover, if one of the caps is smeared with a solution that contains an additive of bleaching substance, then cosmetic objectives can also be achieved at the same time as the dental care.

A practical example should illustrate the dental care method /8 in accordance with this invention:

Mix according to the formulation:

5.0 g secondary sodium phosphate (disodium hydrogen phosphate)

2.0 g gelatin alba (gelatinizing compound)

0.002 g sodium fluoride

130.0 g aqua destillata

1.0 g stabilizer

until a salve results

if "mineral gel Na" is produced and mix according to the formulation

5.0 g calcium lactate

2.0 g gelatin alba

130.0 g aqua destillata

2.0 g stabilizer

until a salve results

if "mineral gel Ca" is produced, whereby the substance can be produced at the factory or at home.

Two caps are required for dental care. A thin layer of "mineral gel Na" is smeared into the first cap and the cap is placed on the teeth. After a period of 2 min, the cap is removed and, without intermediate rinsing of the mouth, the second cap, which has been smeared in the meantime with a thin layer of "mineral gel Ca," is placed on the teeth. After another period of 2 min, this second cap is also removed and the mouth rinsed.